

REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Official Action dated 19 September 2006. Responsive to the rejections made in the Official Action, Claims 1 and 3 have been amended to clarify the combination of elements which form the invention of the subject Patent Application. Additionally, Claim 2 has been canceled by this Amendment.

In the Official Action, the Examiner rejected Claims 1-3 under 35 U.S.C. § 102(b), as being clearly anticipated by Mori, et al., U.S. Patent 6,250,807. The Examiner stated that the Mori, et al. reference clearly showed, in Figs. 1-10, a spindle with a plurality of grooves for guiding oil.

Before discussing the prior art cited by the Examiner, it is believed beneficial to first briefly review the structure of the invention of the subject Patent Application, as now claimed. The invention of the subject Patent Application is directed to a spindle mounted in an oil bearing inside a mover and adapted to rotate a follower member adjacent a top side of the mover. The spindle has a plurality of linearly extending and obliquely directed guide grooves formed on the periphery thereof and extending around the periphery of the spindle in longitudinally spaced relationship. The guide grooves are angularly directed with respect to a direction of rotation of the spindle to force lubricating oil released from the oil bearing to be displaced toward a bottom side of the mover.

Contrary to the Examiner's assertion, the Mori, et al. reference does not

disclose or suggest guide grooves being formed in the spindle of a motor. To the contrary, the reference discloses the formation of hydrodynamic pressure generating grooves 11c in surface 11b of the bearing 11, column 8, lines 63-66. The grooves 11c in fact produce a negative pressure which draws the lubricant into the bearing clearance and thereby continuously drives the lubricant into the bearing surface 11b, column 9, lines 16-24.

Therefore, nowhere does the reference disclose the spindle having a plurality of linearly extending and obliquely directed guide grooves formed on a periphery thereof and extending around the periphery of the spindle in longitudinally spaced relationship, as now claimed. Further, the reference fails to disclose or suggest guide grooves formed on the spindle that are angularly directed with respect to a direction of rotation of the spindle to force lubricating oil released from the oil bearing to be displaced toward the bottom side of the mover, as now claimed. In fact, the reference teaches away from such a structure, in that the guide grooves form a negative pressure which “draws” the oil from the bearing into the clearance space.

Thus, as Mori, et al. fails to disclose each and every one of the elements of the invention of the subject Patent Application, it cannot anticipate that invention. Further, as the reference fails to suggest such a combination of elements, and in fact teaches away from that combination, it cannot make obvious that invention either.

Though the Examiner did not rely on three other references which were cited in the Office Action, it is believed that a brief discussion of these references is warranted. With respect to Rahman, et al., U.S. Patent 7,090,401, and Fukutani, et al., U.S. Patent 5,998,898, these references, like Mori, et al., disclose the formation of grooves in the oil-impregnated bearing and nowhere suggest forming grooves in the spindle of a motor. Thus, these references can neither anticipate nor make obvious the invention of the subject Patent Application, as now claimed.

The Goto, et al. reference, U.S. Patent 6,552,456, however, does disclose the formation of grooves in the spindle of a motor for the purposes of displacing the lubricating oil into the clearances between the spindle and the oil-impregnated bearing. The grooves G1 and G2 have a “herringbone” configuration to provide radial dynamic pressure for displacing the oil. By that arrangement, the oil is displaced bi-directionally and thus does not prevent oil leakage from the topside of the motor. Even the Mori, et al. reference excludes the herringbone configuration from the shape of grooves utilized in that disclosed configuration, column 8, line 66 through column 9, line 3.

As the Goto, et al. reference makes use of grooves having a herringbone contour, that reference fails to disclose or suggest a spindle having a plurality of linearly extending and obliquely directed guide grooves formed on a periphery thereof and extending around the periphery of the spindle in longitudinally spaced relationship, as now claimed. Further, the reference fails to disclose or suggest the

guide grooves being angularly directed with respect to a direction of rotation of the spindle to force lubricating oil released from the oil bearing to be displaced toward a bottom side of the motor, as now claimed.

Therefore, as the Goto, et al. reference fails to disclose each and every one of the elements of the invention of the subject Patent Application, it cannot anticipate that invention. Further, as the reference fails to suggest such a combination of elements, it cannot make obvious that invention either.

For all of the foregoing reasons, it is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.

No fees are believed to be due with this Amendment. If there are any charges associated with this filing, the Honorable Commissioner for Patents is hereby authorized to charge Deposit Account #18-2011 for such charges.

Respectfully submitted,
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